

THE FRUITS OF *DECARYDENDRON* (MONIMIACEAE)

Decarydendron Danguy is a poorly known genus of Monimiaceae (subfamily Mollinedioideae, tribe Hedycareae) comprising three species endemic to Madagascar (Danguy, 1928; Cavaco, 1958a, 1958b; Lorence, 1985). Fruiting material of the genus, hitherto unknown, is described here for the first time based on a specimen of *D. perrieri* Cavaco recently collected by L. J. Dorr and L. Barnett in Madagascar. The following description is based on FAA-fixed fruits of *Dorr & Barnett 3203* (Madagascar, Province Tamatave: environs d'Andasibe-Pèrinet, 18°56'S, 48°25'E, 2–4 Nov. 1984). Voucher specimens have been deposited at MO and TAN, and the fixed collection is at PTBG.

Fruiting receptacle attached at or below ground level, terminal on a finely velutinous peduncle 2.5–3 mm diam., swollen, fleshy, obconical-turbinate, initially 3 cm diam., during development curling outwards and splitting irregularly into 3 partly everted segments, externally and internally velutinous with simple trichomes; mature carpels 12, free, interspersed with numerous aborted carpels. Mature carpels sessile to subsessile, obpyriform, 2–2.5 cm long including the constricted, curved, beak-like apex 5–7 mm long, 1.3–1.6 cm diam., externally yellowish brown, corky, bearing circular to elliptic corky lenticels

over most of the surface; exocarp fleshy, to 1 mm thick (thicker at apex), the surface corky, parenchymatous, the tissue replete with densely aggregated brachysclereids, underlain by a vascularized zone, the mesocarp parenchymatous with scattered \pm cuboidal idioblasts; endocarp hard, white, \pm smooth, discontinuous apically at the micropyle, 0.8–1 mm thick, composed of a densely packed, radially oriented layer of narrow, thick-walled, fusiform columnar sclereids; testa 0.1–0.2 mm thick, brown, composed of 2 layers of tangentially elongated cells with slightly thickened walls, underlain by an endotesta many layers thick of short, rounded tracheids with scalariform thickenings; tegumen 3–4 layers thick, composed of elongate thin-walled cells. Endosperm about 1 cm diam., white, copious, oily, interspersed with crystals. Embryo situated apically in the endosperm below the micropyle, cylindrical-clavate, 2–3 mm long, 1 mm diam. distally, the cotyledons erect, \pm appressed, about half the total embryo length. Figure 1a, b.

DISCUSSION

In a recent monographic treatment of the Malagasy Monimiaceae (Lorence, 1985), it was concluded that *Decarydendron* possessed the greatest constellation of primitive characters of

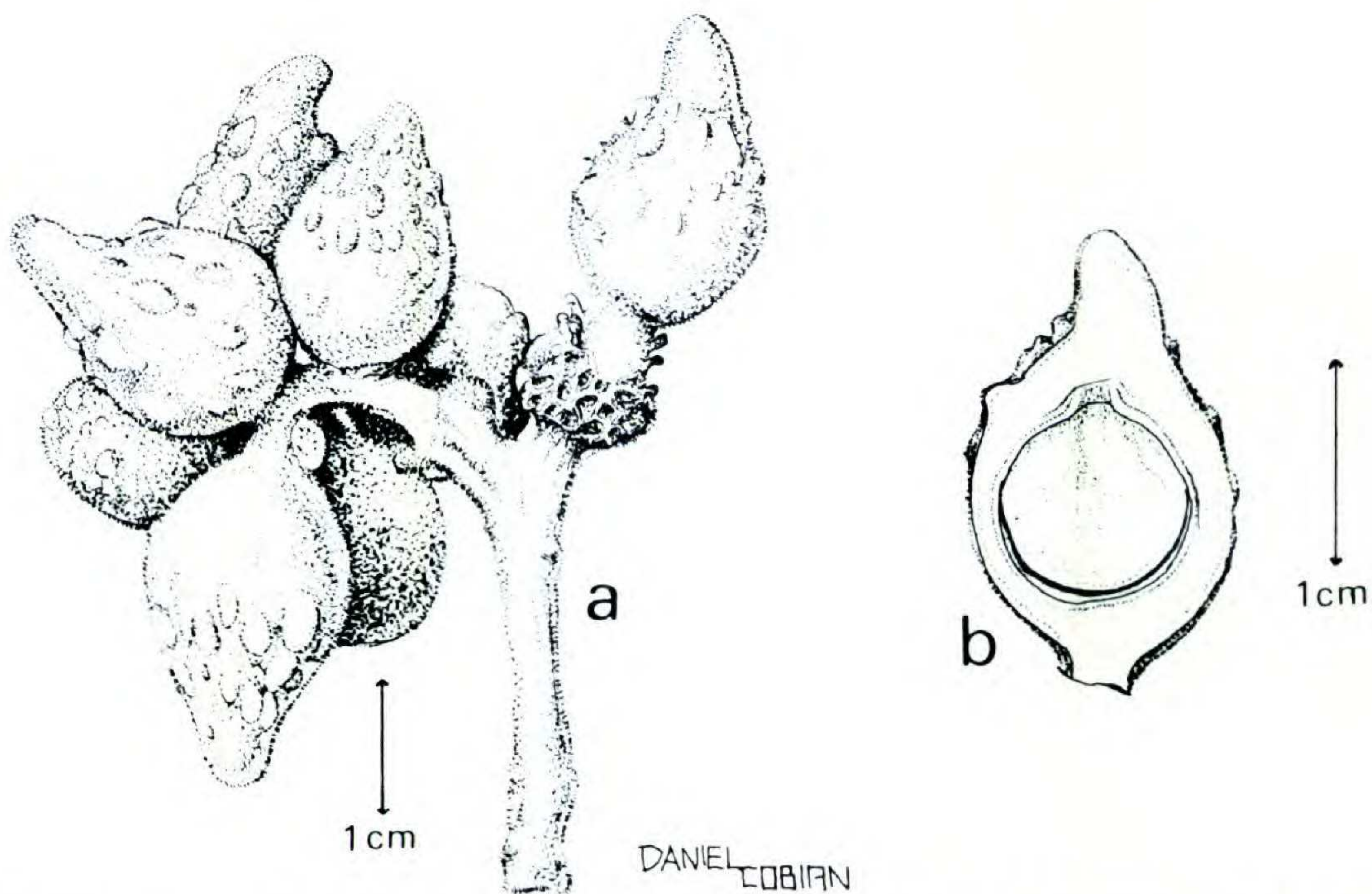


FIGURE 1. Fruiting receptacle and carpels of *Decarydendron perrieri*.—a. Mature, irregularly split receptacle with attached carpels.—b. Carpel, longitudinal section. Based on *Dorr & Barnett 3203* (PTBG).

any of the Malagasy genera: both androecious and gynoecious flowers with shallowly concave receptacles bearing 1–2 whorls of large, imbricate tepals; flowers that unfold gradually at anthesis without splitting into segments as in the other three genera (i.e., *Ehippiandra* Decne., *Monimia* Thouars, and *Tambourissa* Sonn.); gynoecious flowers with numerous (ca. 300–1,000) free, subsessile, clavate carpels. As *Decarydendron* closely resembles *Hedycarya* Forster & Forster f. from Oceania and various Pacific islands in terms of gynoecious floral morphology, it was postulated that mature fruits of the former genus would most likely resemble those of the latter one (Lorence, 1985).

The findings reported here confirm that mature fruits of *Decarydendron perrieri* do strongly resemble those of other genera in the tribe Hedycareae (Philipson, unpublished) and support its placement there. Members of this tribe are characterized by gynoecious flowers with a non-calyptate floral cup that encloses few to many free carpels, and fleshy discoidal or cupuliform fruiting receptacles that gradually split or become everted as the carpels mature. Among the other Malagasy genera belonging to the Hedycareae, the free, sessile to subsessile carpels of *Decarydendron* are less specialized than those of *Ehippiandra*, which are also free but partly immersed in cupules formed by the receptacle. Fruits of both these genera are in turn less specialized than the inferior, syncarpous carpels of *Tambourissa*, which are completely immersed in and united with the ovary wall (Lorence, 1985). Thus, fruit morphology also supports the suggestion that the

three Malagasy genera of Mollinedioideae form part of an increasingly specialized evolutionary series.

Among the extra-Malagasy members of the tribe Hedycareae of the subfamily Mollinedioideae, *Decarydendron* is most closely allied to *Levieria* Becc. from Malesia and Australia, and particularly to *Hedycarya*, in terms of floral and fruit morphology. *Decarydendron* differs from both these genera in being monoecious, in having sexually mixed cauliflorous inflorescences, and in having gynoecious flowers with more numerous clavate carpels having the styler canal situated in the basal half of the carpel.

I thank L. Dorr of the Missouri Botanical Garden for providing fixed material of *Decarydendron perrieri* and Danial Cobian of the Instituto de Biología for the illustration.

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